

SECTION 07 6113

STANDING SEAM SHEET METAL ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Standing seam metal roofing (SSMR).
2. Concealed gutters, downspouts, reinforcement, anchors, clips, fasteners and necessary closures and flashings.
3. Underlayments.

B. Related work:

1. Division 7 for waterproofing under SSMR.
2. Division 7 for all other flashings and sheet metal.

1.2 PERFORMANCE REQUIREMENTS

A. General: Provide metal roof that prevents the passage of water.

B. Wind-uplift resistance:

1. Provide clips, fasteners, and clip spacings of type indicated in signed and sealed engineered calculations provided by CSI Architectural Metal, Inc..

C. Wind-uplift resistance:

1. Provide sheet metal roofing assemblies that comply with UL 580 for Class 90 wind-uplift resistance.

D. Thermal movements:

1. Provide sheet metal roofing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects.
2. Provide clips that resist rotation and avoid shear stress as a result of sheet metal roofing thermal movements.
3. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
4. Temperature change (range): 120 deg F, ambient; 180 deg F, material surfaces.

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- E. Water infiltration: Provide sheet metal roofing that does not allow water infiltration to building interior, with metal flashing and connections of sheet metal roofing lapped to allow moisture to run over and off the material.

1.3 SUBMITTALS

- A. Data: Copies of manufacturer data for metal roofing.
- B. Shop drawings: Show fabrication and installation layouts of sheet metal roofing, including plans, elevations, and keyed references to termination points. Distinguish between shop- and field-assembled work. Include the following.
 - 1. Details for forming sheet metal roofing, including seams and dimensions.
 - 2. Details for joining and securing sheet metal roofing, including layout of fasteners, clips, and other attachments. Include pattern of seams.
 - 3. Details of termination points and assemblies, including fixed points.
 - 4. Details of expansion joints, including showing direction of expansion and contraction.
 - 5. Details of roof penetrations.
 - 6. Details of edge conditions, including eaves, ridges, valleys, rakes, stainless steel crickets, and counterflashings.
 - 7. Details of special conditions.
 - 8. Details of connections to adjoining work.
 - 9. Details of the following accessory items, at a scale of not less than 1-1/2-inch.
 - a. Flashing and trim.
 - b. Concealed gutters made of 316 stainless steel 24gauge, expansion joints, soldered joints .
 - c. Downspouts.
- C. Samples: 24-inch square metal samples with a minimum of one seam, ridge and eave detail, finished as specified. Mount on VMZ Delta mat/ underlayment/plywood substrate.

1.4 QUALITY ASSURANCE

- A. Design:
 - 1. Attachment of metal roofing to substrate shall be designed by a Washington-registered professional engineer to resist positive and negative wind loads prescribed by Code, but not less than UL 90 design.
 - 2. Submit calculations signed and sealed by the engineer to verify compliance with this criteria.
- B. Installer's qualifications: Installer of zinc roof system with a minimum of 10 years successful experience working with copper or zinc.

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- C. Sheet metal roofing standard: Comply with SMACNA's "Architectural Sheet Metal Manual". Conform to dimensions and profiles shown unless more stringent requirements are indicated.
- D. Mockup:
 - 1. Build mockup of typical roof eave, including fascia, approximately 48-inch square by full thickness, including attachments, underlayment, and accessories.
 - 2. Modify mockup when requested by the Architect, until the Architects approval is obtained.
 - 3. Approved mockup may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 HANDLING

- A. Delivery: Deliver metal fabrications with strippable protective film.
- B. Storage:
 - 1. Off the ground to allow drainage of condensation.
 - 2. Do not store materials with strippable film in direct sunlight.

1.6 WARRANTY

- A. Warrant metal roofing to remain watertight, and to be free of defects in materials and workmanship for 2 years after Substantial Completion.
- B. Repair or replace defective materials and workmanship during this period at no cost to the Owner.
- C. CSI Architectural Metal to provide a 10year weather-tightness warranty after a successful inspection of the installation has been completed.

PART 2 - PRODUCTS

2.1 ROOFING TYPE/ MANUFACTURER/ SUPPLIER

Titanium-Zinc Double Lock Roof Panel System by CSI Architectural Metal in Carson, CA 90746. Contact: Daniel Schmidt (310)447-4749 dan@csimetalinc.com, Omar Farfan (310)909-4148 omar.farfan@csimetalinc.com, website: www.csimetalinc.com

2.2 MATERIALS coil and sheet

- A. Metal roofing and flashings: VM Titanium-Zinc-Alloy, Alloy Composition to EN 988, Zinc To EN 1179 (with SHG 99.995% purity) other elements making up the alloy are: Copper 0.08 – 1.0% Titanium 0.06 – 0.2% aluminium $\leq 0.015\%$,), add VMZINC PLUS 60 μ m coating applied to the underside in accordance with ASTM D 968, Thickness: 0.8mm, Finish: per approved sample (7)
- B. Fasteners/ clips:
 - 1. For metal panels: UL-580 expansion clip 304 stainless steel 16gauge base w/ 22gauge hook, fasteners as indicated in project specific engineered calculations.
- C. Ventilation Underlayment: VMZ Delta Mat

- D. Waterproofing membrane: GRACE ULTRA SA
- E. Primer: Perm-A –Barrier
- F. Fire Rating: Densdeck 0.25"
- G. Substrate: 5/8" OSB
- H. Sealant: DOW CORNING 795

2.3 FABRICATION

- A. The applicable provisions of the Architectural Sheet Metal Manual published by SMACNA govern the work of this Section, except as indicated by VM Building Solutions.
- B. CSI Architectural Metal to roll-form panels off site using continuous forming machine specialized for zinc.
Natural zinc, QUARTZ-ZINC and ANTHRA-ZINC should always have an internal folding radius of at least 2 x the thickness of the zinc sheet ,and the metal should never be folded if the temperature of the metal is less than +7°C.
When using PIGMENTO, this radius should be increased to 3 x the thickness of the zinc sheet, and the folding should only be carried out when the temperature of the metal is at least +10°C. All folding of the zinc should be carried out with the protective film in place
- C. Strippable Film (PVC):
Strippable film should be removed as soon as possible after installation, but under no circumstances should it be partially removed as this may lead to unevenness of the finish/ patina. Shop applied protective films should be avoided as these may trap air and moisture leading to formation of hydroxide stains on titanium-zinc.
- D. Transportation and On-Site Storage:
VMZINC products must be transported and stored under dry, ventilated conditions. While in storage at the shop or on site, contact between moisture, such as with wet sheeting or tarps, and the surface of the metal must be avoided.
The following steps should be practiced at all times:
 - Provide ventilation to covered VMZINC materials
 - Store on dry pallets on a dry floor
 - Transport covered on dry pallets
 - Avoid tight stacking (to prevent chafing)
 - Provide abrasion protection when transporting
 - Allow material to sit unopened for several days upon receipt to allow for acclimation to the storage area's temperature and humidity.
- E. Handling and Fingerprints:
Due to the acidity of perspiration, fingerprints on Titanium Zinc may become permanent blemishes that over time will heal but can remain visible for quite some time. Wear clean gloves when handling material during transportation, fabrication, and installation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and measurements affecting the work of this Section at site.
- B. Correct conditions detrimental to the proper and timely completion of this work before proceeding with installation.

3.2 UNDERLAYMENT

- A. Install undamaged underlayment per GRACE installation guidelines

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3.3 METAL ROOFING

- A. Install metal roofing and flashings with seams, closures and flashings accurately fitted, and all fasteners concealed from view, in compliance with the approved shop drawings.
- B. Where exposed fasteners are unavoidable for edge flashings, they shall be stainless steel.
- C. Seal all joints, except those inherently waterproof because of assembly technique, with sealant specified in Section 07 9200; when sealants will be visible, select one matching the color of the panel. Assemblies shall finish water and weathertight.

3.4 PROTECTION/REPAIRS

- A. Protect finish from damage. Do not allow traffic on completed roof. Remove protective film as soon as installation is completed.

- B. Repairs:

- 1. Consult repair with VM Building Solutions, and CSI Architectural Metal Inc.
 - 2. Otherwise replace damaged materials to the Architect's satisfaction.

- C. Cleaning:

The rinsing effect of the rain will often mean that no other cleaning is necessary. However, it is possible to wash the zinc with warm water and a mild detergent.

Zinc must always be cleaned in the direction of the grain of the metal. Pressure washers are not recommended. Cleaning with detergent can be supplemented with application of a very small amount of mineral oil. The zinc must be completely dry prior to any application of mineral oil. It is always advisable that a small test area is cleaned and left for 24 hours prior to proceeding to a larger area.

END OF SECTION

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